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## My NASA Data - Lesson Plans

### GLOBE Regional Connections: Earth Systems at a Regional Level, Defining Regional Boundaries



#### Purpose

Students discuss their current understanding of what Earth systems are and how they work and consider how to identify the boundaries of a region for Earth system study. In small groups, they select a region for recommendation to the class, and they make a list of characteristics and features that can mark the boundaries of regional systems. After presentations by each group, the class chooses one region for study as an Earth system. Then they mark the boundaries of their chosen region on their Landsat image, topographic map, or other maps.

#### Learning Objectives

Students will be able to

- 
- define “region” as an area which has similar features throughout;
  - identify a specific region for study as an Earth system by finding boundaries; and
  - describe the region’s boundaries so that others can find them on a map.

## Materials Required

- Landsat image of your school
- Topographic maps and/or others such as vegetation, physical, soil maps of the region covered by the Landsat image (as available)

## Preparation

- Review the Landsat image and maps.
- Make student copies:
  - Worksheets:
    - Identifying a Region for Study
    - Student Self-reflection Log: Identifying a Region
    - Assessment rubric for this activity (You may want to share with students.)

## Technology Requirements

- Standalone Lesson (no technology required)

## Teacher Background Information

### General "Earth As a System" Documents

- [Earth as a System Introduction \(pdf\)](#)
- [Earth as a System Appendix \(pdf\)](#)

## Procedure

See the [link](#) here to access the full lesson plan and student worksheets.

# RC1: Defining Regional Boundaries



Welcome

Introduction

Protocols

Learning Activities

Appendix

## Purpose

To identify a region for study as a system, and to establish a list of characteristics and features useful for determining the boundaries of regional systems

## Overview

Students discuss their current understanding of what Earth systems are and how they work, and consider how to identify the boundaries of a region for Earth system study. In small groups, they select a region for recommendation to the class, and they make a list of characteristics and features that can mark the boundaries of regional systems. After presentations by each group, the class chooses one region for study as an Earth system. Then they mark the boundaries of their chosen region on their Landsat image, topographic map, or other map.

## Student Outcomes

Students will be able to,

- define "region" as an area which has similar features throughout;
- identify a specific region for study as an Earth system by finding boundaries; and
- describe the region's boundaries so that others can find them on a map.

## Science Concepts

### Earth and Space Sciences

Weather changes from day to day and over the seasons.

The sun is the major source of energy at Earth's surface.

Solar insolation drives atmospheric and ocean circulation

Each element moves among different reservoirs (biosphere, lithosphere, atmosphere, hydrosphere).

### Physical Sciences

Heat is transferred by conduction, convection and radiation.

Heat moves from warmer to colder objects.

Sun is a major source of energy for changes on the Earth's surface.

Energy is conserved.

Chemical reactions take place in every part of the environment.

## Life Sciences

Organisms can only survive in environments where their needs are met.

Earth has many different environments that support different combinations of organisms.

Organisms' functions relate to their environment.

Organisms change the environment in which they live.

Humans can change natural environments.

Plants and animals have life cycles.

Ecosystems demonstrate the complementary nature of structure and function.

All organisms must be able to obtain and use resources while living in a constantly changing environment.

All populations living together and the physical factors with which they interact constitute an ecosystem.

Populations of organisms can be categorized by the function they serve in the ecosystem.

Sunlight is the major source of energy for ecosystems.

The number of animals, plants and microorganisms an ecosystem can support depends on the available resources.

Atoms and molecules cycle among the living and non-living components of the ecosystem.

## Scientific Inquiry Abilities

Analyzing maps

Collaborating with classmates

Communicate results and explanations.